IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Lee-Yin Chee, Kheng Guan (Nigel) Tan, Sie-Boo Chiang		
Assignee:	Advanced Micro Devices, Inc.		
Title:	Method of Generating Packets Without Repetition in Verification of a Device		
Serial No.:	10/791,914	Filing Date:	March 3, 2004
Examiner:	Kenan Cehic	Group Art Unit:	2473
Docket No.:	SE0044	Customer No.:	53362

Filed Electronically June 22, 2010

PRE-APPEAL BRIEF REQUEST FOR REVIEW AND STATEMENT OF REASONS

Sir:

Applicants request review of the Final Rejection dated March 25, 2010. No amendments are being filed with the request. This request is being filed with a Notice of Appeal. The following sets forth a succinct, concise, and focused set of arguments for which the review is being requested.

CLAIM STATUS

Claims 2-6 were finally rejected as obvious over U.S. Patent Publication No. 2003/0172177 to Kersley et al. in view of U.S. Patent Publication No. 2002/0190356 to Buechler et al. as evidenced by English, ADA 95: The Craft of Object-Oriented Programming. Applicants filed an Amendment After Final proposing amendments to clarify that "a single flag" is used for each packet class, but these amendments were not entered in the Advisory Action dated June 16, 2010. Applicants respectfully traverse the rejections for the reasons set forth below.

Applicants have invented a device verification method which provides a single dual-state flag for each of a plurality of packet classes. As recited, the single flag can have either a first state (e.g., "0" to indicate that the packet class has not been tested) or a second state (e.g., "1" to indicate that the packet class has been tested). *It bears emphasis that the claims singularly and consistently recite "the flag" with reference to the earlier recitation of "a flag" which provides the antecedent basis for the recited single flag.* When a packet from a packet class is generated, the single flag for that packet class is checked to see if it is in a first state, and if so, that packet is used to test the device for that packet class and the flag is changed to the second state. *See, e.g.*, claim 2. On the other hand, if the single flag for that packet class is in a second state, the packet is not used to test the device for that packet class. *See, e.g.*, claim 3. **In this way, a device is tested *by packet class* since a packet within each packet class will only be used to test the device if the flag for that**

packet class has not been set to the second state. With Applicants' invention, packets need not be stored in memory, but can instead be "generated" as claimed (e.g., randomly), and each generated packet in a given packet class can be checked against the flag for that packet class to determine if the packet will be used to test the device. This approach eliminates the costs associated with storing all possible packets to be tested, and also eliminates the inefficient testing of devices with redundant packets by using a single flag for each packet class to determine if a generated packet in the packet class will be used to test the device.

In rejecting claims 2-6 as obvious over Kersley, Buechler and English, the Examiner asserts that Kersley's disclosed method for verification of a device-under-test (Kersley, Fig. 2, ¶¶ 5-7, 18, 21-22, 35, and 43) meets the claim requirements except for variously recited requirements of (1) "providing a flag, which may be of a first or a second state, for each of the plurality of packet classes" (claims 2-6); (2) testing the device "if the flag of the packet class of the generated packet is in the first state" (claims 2-3 and 5-6); (3) not testing the device "if the flag of the packet class of the generated packet is in the second state" (claims 3-6); and (4) "changing the flag of the packet class of the generated packet to the second state" if the flag of the packet class of the generated packet is in the first state (claims 2 and 5-6). *See*, Office Action, pp. 2-6. To overcome these deficiencies in Kersley's disclosure, the Examiner cites Buechler's disclosure (Buechler, ¶ 78) of using "record flags" to assure that all required assay tests are performed and to avoid duplication of testing. Id., pp. 6-8. In the rejection analysis, the Examiner does not recognize that a single flag is used for each packet class to convey the test status of the packet class, asserting that "the claims does (sic, do) not explicitly state 'a **single** flag', but merely 'a flag'. This claimed language does not exclude the possibility of having multiple flags for a packet class, but merely states that there is a flag for a packet class." *See*, Office Action, pp. 8-9 (emphasis in original). As a result, the Examiner asserts that Buechler's two separate flags meet the claim limitation of "a flag." Id.

In reply, Applicants respectfully submit that the Examiner's proposed interpretation and application of the claims is incorrect because it fails to take into account the clear and explicit claim requirements that there is "a flag" with two states, that the device is tested with a packet if "the flag" is in a first state, and that "the flag" is changed to the second state if "the flag" is in the first state. The singular nature of "the flag" recited in the claims follows directly from the claim formatting requirements for reciting an antecedent basis for the claimed "flag" limitation, and Applicants submit that persons having ordinary skill in the art would readily understand as much

from the recited language. Applicants proposed reading of the claims is consistent, not only with the explicit requirements of "the flag" in claims, but also with the intrinsic evidence:

> In the present method for use in verification of a device, a plurality of injection flags are provided, with one each of which is associated of a plurality of packet classes. Each injection flag may be of a first or a second state. Next, a packet is generated. If the injection flag of the packet class of the generated packet is in the second state, it is indicated that a packet of that packet class has already been generated, and the device is not tested. If the injection flag of the packet class of the generated packet is in the first state, the device is tested and the injection flag of the packet class of the generated packet is set to the second state.
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> Figure 1 illustrates the steps of the present invention. In the present simulation, initially, each legal packet class is provided with a 1-bit injection flag.

See, Application, p. 2, lines 1-9 and 32-33. As these passages show, Applicants have disclosed and claimed using a single flag for each packet class to drive and determine these various actions (test, not test, change flag state). In contrast, the cited art explicitly discloses using a plurality of record flags to track tests and prevent duplication. *See*, Buechler, ¶ 78 ("In order to assure that all required tests are performed, and also to avoid duplication of testing, record **flags** or other techniques can be used when the database 464 is accessed to retrieve test instructions. For example, when fluorometer 100 accesses information system 408 to receive instructions for a particular test, that test is flagged as being performed such that subsequent accesses by this or another fluorometer 100 will not retrieve the same test instructions. Once a test is completed and the results provided to information system 408, **another flag** can be set indicating the status of the test as being completed.") (emphasis added). Thus, Applicants' approach is more efficient than the cited art because Applicants use a single flag to convey test status information for each packet, while the cite art uses multiple record flags to track tests and prevent duplicate testing.

In this case, the rejection analysis appears to have mischaracterized the claimed invention by ignoring the requirement that a single flag be used for each packet class to determine:

> (1) whether the device is tested with the generated packet (as variously required in claims 2-3 and 5-6 which require device testing "if the flag of the packet class of the generated packet is in the first state");
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> (2) whether the device is *not* tested with the generated packet (as variously required in claims 3-6 which require no device testing "if the flag of the packet class of the generated packet is in the second state"); and/or
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> (3) whether the flag is changed to a second state (as variously required in claims 2 and 5-6 which require changing the flag state if the flag of the packet class of the generated packet is in the first state").

See, e.g., claims 2-5. In short, Applicants have disclosed and claimed using a single flag for each packet class to drive and determine these various actions (test, not test, change flag state).

Against this backdrop, Applicants urge reconsideration and withdrawal of the rejection over Kersley, Buechler and English because the proposed combination fails to disclose or address the variously recited requirements in claims 2-3 and 5-6 of testing the device "if the flag of the packet class of the generated packet is in the first state" since Buechler discloses accessing the test instructions without first checking the state of an associated flag for the test. Likewise, rather than meeting the variously recited requirements in claims 3-6 of not testing the device "if the flag of the packet class of the generated packet is in the second state," Buechler discloses accessing "another flag" (not the same flag) to see if the test has been completed. Finally, rather than meeting the variously recited requirements in claims 2 and 5-6 of changing the flag to the second state "if the flag of the packet class of the generated packet is in the first state," Buechler discloses setting "another flag can be set" (not the same flag) "[o]nce a test is completed and the results provided to information system 408." In sum, Buechler uses two flags, not one flag as claimed, and sets the flags in response to different triggers than claimed. Buechler's use of multiple flags for each test should come as no surprise since Buechler's fluorometer testing scheme is concerned with only a limited number of tests, so there would be no significant penalty in tracking multiple flags for each test. In contrast, Applicants' disclosed verification scheme is being used to test devices with "several thousand different combinations" of possible packet classes being tested. *See*, Application, p. 1, lines 20-21.

Another problem with the cited art is that neither Kersley nor Buechler disclose or suggest "providing a plurality of packet classes," much less "providing a flag ... for each of the plurality of packet classes" as recited in each of the pending claims. On this point, Applicants have carefully review the cited disclosure from Kersley (Fig. 2, ¶¶ 5-7, 18, 21-22, 35, 43), but there is absolutely no teaching or suggestion of any "packet class," much less of providing a single flag for each "packet class." And while Buechler discloses maintaining a flag for each assay test performed by the fluorometer, there is no suggestion of maintaining a flag for a class of tests. Thus, there is simply no teaching or suggestion that the cited art combination provides "a plurality of packet classes" with a (single) flag "for each of the plurality of packet classes," as recited in the claims. Instead of being concerned with testing by packet class, Kersley is concerned with verifying a device-under-test by "generating packets to simulate complex network packet traffic patterns to test and verify a device under test (DUT)." Kersley, paragraph 5.

Based on the foregoing and putting aside for the moment the propriety of combining the Kersley, Buechler and English references, Applicants submit that a *prima facie* case of obviousness has not been established for claims 2-6 because the Examiner has not met the burden of showing that all the claim limitations are taught or suggested by the prior art. In the absence of any disclosure by the cited art references of a device verification method which provides a single flag for each of a plurality of packet classes for purposes of performing device verification testing on each packet, the Examiner has not made the *prima facie* showing that each and every element of the claimed invention, arranged as required by the claims, is found in the cited art. When determining whether a claim is obvious, an Examiner must make "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, "obviousness requires a suggestion of all limitations in a claim." CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003) (*citing* In re Royka, 490 F.2d 981, 985 (CCPA 1974)). Moreover, the Supreme Court has made clear that "*there must be some articulated reasoning* with some rational underpinning to support the legal conclusion of obviousness." KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727, 1741 (2007) (*quoting* In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006) (emphasis added)). Accordingly, Applicants respectfully request that the obviousness rejection of claims 2-6 be reconsidered and withdrawn, and that the claims be allowed.

CONCLUSION

In view of the remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephone interview, the Examiner is requested to telephone the undersigned at 512-338-9100.

CERTIFICATE OF TRANSMISSION

I hereby certify that on June 22, 2010, this correspondence is being transmitted via the U.S. Patent & Trademark Office's electronic filing system.

/Michael Rocco Cannatti/

Respectfully submitted,

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